South Coast AQMD: Plug-in Hybrids and Clean Technologies

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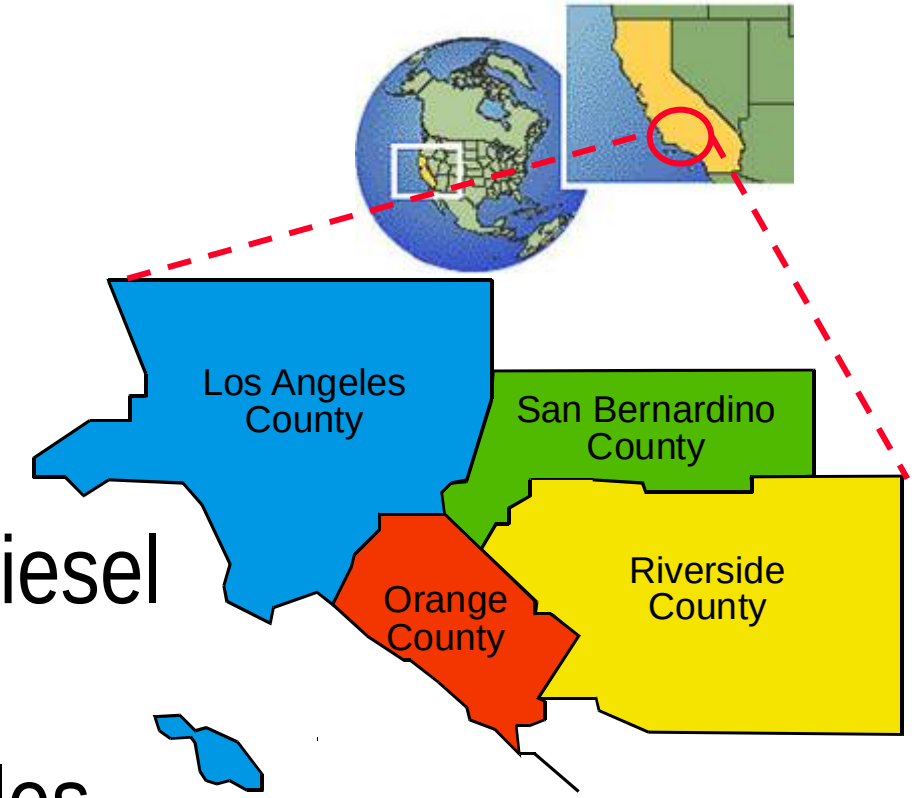
AQMD Background

South Coast Basin:

- 4-county region
- 11,000 sq. miles
- 16+ million residents
- Hundreds of thousands diesel vehicles
- Millions of gasoline vehicles
- Combined Ports of Long Beach and Los Angeles are nation's largest cargo gateway



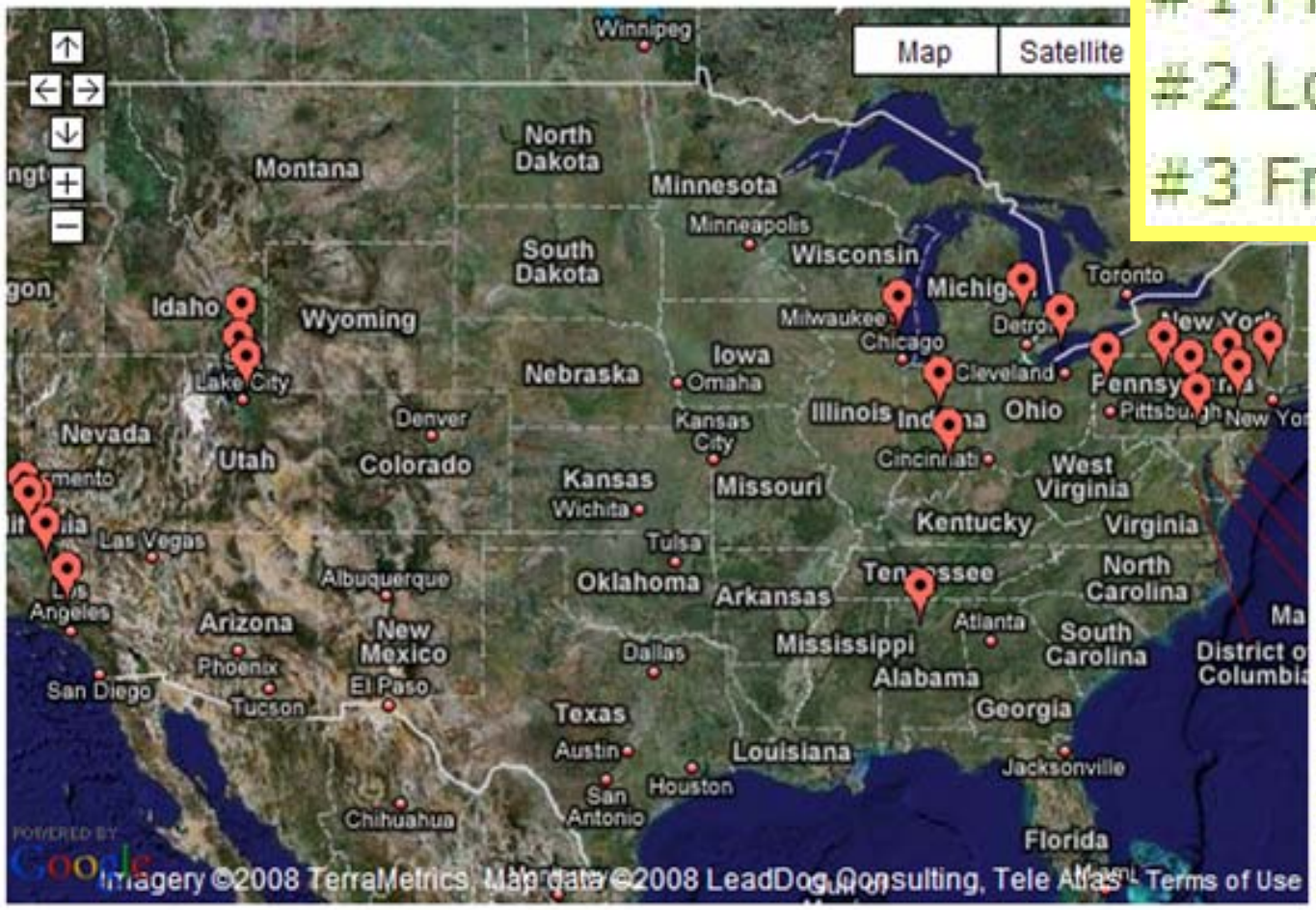
AMERICAN LUNG ASSOCIATION.

State of the Air: 2008

Most Polluted: Short-Term Particle Pollution

Ozone | Year-Round Particle Pollution | **Short-Term Particle Pollution**

Click on a city below to learn more about its ranking



#1 Pittsburgh
#2 Los Angeles
#3 Fresno
#6 Logan
#7 Salt Lake City
#8 Sacramento
#9 Detroit
#10 D.C./Baltimore
#11 Eugene
#12 Provo
#13 Chicago
#14 New York City
#15 Cleveland
#16 SanFrancisco
#17 Hanford
#18 Indianapolis

AQMD Technology Portfolio

- Near-term to longer-term
- "Planting many seeds"
- Developing "Pathways"

Fuel Cell

Clean Transit

Plug-ins

Heavy-Duty Natural Gas

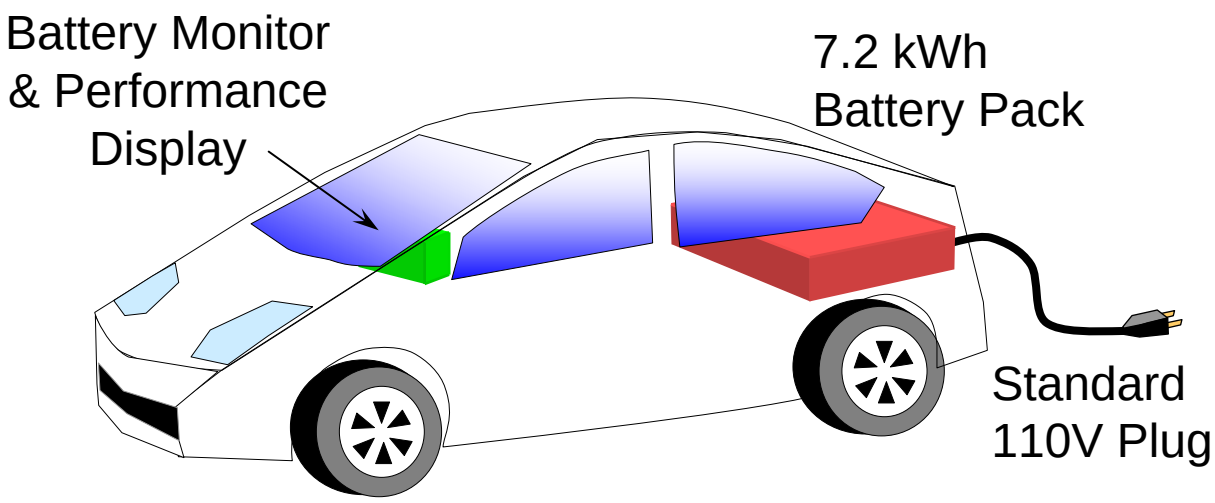
CNG

Plug-in Hybrids May be One Solution

- EPRI Market Study (2000)
- UC Davis (2000 & 2003)
- SCE Utility Truck (2001)
- AC Propulsion Tri-fuel Jetta (2001 & 2005)
- EnergyCS Prius conversions (2005)
- EPRI/Daimler Sprinter Vans (2003 & 2005)
- EPRI/Eaton Bucket and Delivery Trucks (2006 & 2008)

Plug-in Hybrid Electric Vehicles (PHEVs)

- Increased range (up to 2x normal hybrid)
- Charge off-peak from household outlet
- Zero-emission miles when on battery alone



9 kWh battery at
$0.08/kWh off-peak

PHEVs as an Enabling Technology

Battery Electric

Plug-in
Fuel Cell

Series Plug-in
"Extended Range EV"

- Develop battery technologies
- Supplier investment & integration
- Address durability and cost

Plug-in Hybrids

Plug-in Light-Duty Projects

- EnergyCS – 5 Priuses
- Thirty Vehicle Program
  - 20 Quantum Escapes
  - 10 Hymotion Priuses
  - In progress

drive change

upgrade to a Hymotion™ plug-in hybrid and get up to 100+ MPG*

Become a Plug-In Pioneer. Reserve your Hymotion™ L5 Plug-In Conversion Module now!

We are now taking $1000 deposits for the Hymotion™ L5 Plug-in Conversion Modules for the Toyota Prius. The L5 is priced at $9995 + all applicable taxes + $400 destination fee. Installation and a standard 3 year warranty are included. Place a deposit now to reserve your L5 and choose the A123 Green Certified Hymotion Installer Partner (CHIP) dealer location of your choice.

Consumer orders placed at this time are expected to ship from our factory in December 2008. Actual installation date will be scheduled through your local Green CHIP dealer.

Automaker Activities

HYBRID SYNERGY DRIVE
INFORMATION TERMINAL PRESENTED BY TOYOTA

CONTROL PANEL | EASY ACCESS | VIEW PDF | SEARCH

ENGLISH FRANÇAIS DEUTSCH 中 文

Home > Benefits > Quietness > How it Works > EV Drive Mode

EV Drive Mode

Drive with the gas/petrol engine off

- Battery charge drops below specified level
- Vehicle traveling speed exceeds 55 km/h
- Accelerator pedal opening angle exceeds pre-defined angle

*2 The figure indicated is for Prius. The range of travel will depend on the condition of the battery powering the electric motors. This option is not available on some of the hybrid systems.

- Chevy Volt
- Ford Escape

United States Department of Energy

Office of Public Affairs

Washington, D.C. 20585

June 12, 2008

DOE Announces $30 Million for Plug-in Hybrid Electric Vehicle Projects

Adds Plug-in Hybrid Vehicle to Department's Fleet

General Motors has been selected for negotiation of an award for a project aimed at enhancement of Lithium-Ion battery packs, validation. Following development, the PHEVs will be deployed over a three year period into a demonstration fleet in three region: (EPRI), University of Michigan Transportation Research Institute, and the Michigan Economic Development Corporation.

Ford Motor Company has been selected for negotiation of an award for a project to identify a pathway that accelerates commerc battery systems and deployment of prototype PHEVs. The project will test and demonstrate the propulsion system design, control program. Team members include Southern California Edison, Electric Power Research Institute, and Johnson Controls-Saft, Inc.

General Electric has been selected for negotiation of an award for a demonstration of PHEVs that relies upon an innovative dual- driving range. The project will focus on developing the dual-battery energy storage system in parallel with vehicle integration. GE is

Plug-in Medium-Duty Projects

- EPRI-Daimler Sprinter Van
- EPRI-Eaton Bucket Truck
- DOE-EPRI-Eaton-UHaul Delivery Van
- Benefits
  - No idling
  - Diesel replacement
  - Improved fuel economy
  - Local air quality impacts

Multiple Pieces to Puzzle

Develop and Demonstrate Pathways

- PZEV technologies available now
- Hybrids and CNG
- Plug-ins soon
- Enabling technologies for hydrogen and fuel cells

All in Concert

- Reduce greenhouse gas emissions
- Reduce dependence on foreign fuels
- Reduce urban air pollution
- Technologies + Policies
- Partnerships